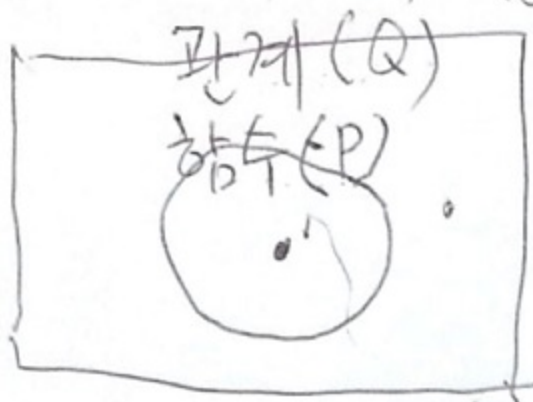


계 3장 무한집합

함수와 관계 (function vs. relation) $R \subseteq A \times B$
 $f \subseteq A \rightarrow B$



함수의 특징 (Characteristic) (정의)

- i) 함수는 binary 관계이다
- ii) $\forall a \in A, \exists f(a) \in B$... 전제함수 (totalness)
- iii) " , $\exists ! f(a) \in B$... 단일성 (uniqueness)

甲年
東
人

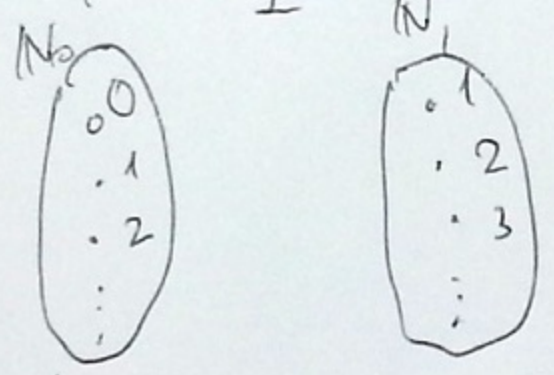
경

무한집합 — 원소의 갯수가 유한하지 않은 집합.

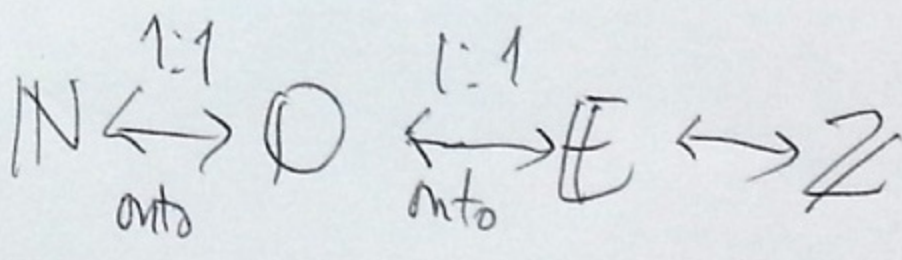
\mathbb{N} ... 무한집합의 예

$0 \in \mathbb{N}$
 $m \in \mathbb{N} \Rightarrow n^+ \in \mathbb{N}$

N_0 vs N_1 $N_1 \subset N_0$ but $|N_1| = |N_0|$



$|\mathbb{N}| = |\mathbb{E}| = |\mathbb{O}|$



\mathbb{N} vs $\mathbb{N} \times \mathbb{N}$
 각각의 크기 \mathbb{N}^2

	0	1	2	...
0	(0,0)	(0,1)	(0,2)	...
1	(1,0)	(1,1)	(1,2)	...
2	(2,0)	(2,1)	(2,2)	...
...

Halting Problem

$\mathbb{N} \leftrightarrow \mathbb{N}^k$
 $\mathbb{N} \leftrightarrow 2^{\mathbb{N}}$

피타고라스의 #/2 — Cantor's Diagonal Argument
 Russel's Paradox, Gödel's ICT.